



## **Solar cycle comparison of the heliospheric magnetic field underlying direction at high southern latitudes**

**R.J. Forsyth** (1), A. Balogh (1) and E.J. Smith (2)

(1) The Blackett Laboratory, Imperial College London, UK (r.forsyth@imperial.ac.uk), (2) Jet Propulsion Laboratory, Pasadena, USA

Through the year 2006, the Ulysses spacecraft has travelled to high southern heliospheric latitudes for the third time in its 16 year mission to date. This allows comparison between high latitude solar minimum conditions one solar cycle apart. In this paper we revisit the underlying direction of the heliospheric magnetic field, a fundamental parameter in heliospheric studies. During the first orbit in 1994, distributions of the magnetic field azimuth angle at high southern latitude calculated from hourly averaged data were found to be asymmetric, believed to be due to the large amplitude Alfvén waves present in the fast solar wind. An over-wound most probable azimuth angle compared to Parker model predictions was also found, an observation which was not repeated at high northern latitudes. Preliminary analysis of 2006 data reveals a similar asymmetric distribution of directions and again some evidence of over-winding. We will review the most recent data in comparison with that from the previous solar minimum and discuss possible causes of the observed effects.